

*Abstract*

The instant invention is a method for increasing a metazoan's lifespan, comprising administering a carboxylated derivative of a C<sub>60</sub> fullerene. The instant invention further is a process for extending a metazoan's lifespan by administering a superoxide dismutase-mimetic as well as a composition comprising a superoxide dismutase-mimetic. Further, the instant invention comprises a pharmaceutical composition comprising carboxyfullerenes having x pairs of adjacent carbon atoms bonded to two carbons of the C<sub>60</sub> sphere wherein said adjacent carbon atom is further bonded to two groups of the general formula -COOH and -R, wherein R is independently selected from the group consisting of -COOH and -H, and wherein x is at least 1.

10 A further embodiment is a non-metal containing composition which can catalytically eliminate two biologically reactive species.

Another embodiment is a method of enhancing elimination of reactive oxygen species in eukaryotic cells by contacting cells with a superoxide dismutase mimetic.